

# A Transformational Leap in Literacy



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## What is the compelling question or challenge?

Could a logical, rules-based phonetic English spelling system transform literacy education, resulting in proficient reading and writing at a younger age while raising literacy and comprehension rates?

## What do we know now about this Big Idea and what are the key research questions we need to address?

The process of learning to read English is long and complex, requiring years of outright memorization of arbitrary exceptions. American children spend hours each week on the subject of spelling. Although there is significant research on literacy education, there has never been a focused attempt to solve the root of the problem, which is that English spelling is incredibly difficult. But that simply does not need to be the case.

### Key research questions:

#### 1. Can simplified spelling substantially improve literacy rates in the US?

14% of adult Americans demonstrate a “*below basic*” literacy level, and 29% exhibited a “*basic*” reading level [1]. How would these numbers change if spelling were so simple that students could become proficient readers in months, rather than years? We currently spell 42 sounds in over 400 ways, with thousands of exceptions beyond that. This is a formidable barrier to literacy, particularly for disadvantaged students in low-income communities. A phonetic spelling system would consist of less than 50 rules between sounds and letters, applied consistently to all words. It has the potential to revolutionize literacy education. Research is needed to quantify the improvements in reading and comprehension across the spectrum of students, but particularly for those at risk of low proficiency.

## **2. How does literacy attainment vary between countries with phonetic versus complex spelling systems?**

Luckily, we already have a testbed to study simplified spelling. Finnish and German have ‘shallow’ spelling systems, with tight correspondence between sounds and letters. The few studies to date show that their schoolchildren become “accurate and fluent in foundation-level reading before the end of the first school year” [2]. Literacy researchers should compare reading proficiency at various grade levels versus spelling complexity, as other countries may serve as a proxy for potential literacy rates in the US with simplified spelling.

## **3. In order to implement spelling reform, what are the difficulties, costs, and potential technological solutions?**

Any change to a standard system requires short-term costs, time, and inconvenience, even when there is substantial long-term payoff. Innovative technological solutions can solve issues that made spelling reform untenable in past decades. On any device, each person could choose between traditional and simplified spelling with the click of a button.

## **4. What is the best simplified spelling system?**

Researchers would have the opportunity to design an English spelling system from the ground up to optimize for ease of learning, fluency, and comprehension. Criteria might include:

- Simple phonetically-based rules, applied uniformly, with a one-to-one mapping between sounds and spelling
- Minimal exceptions
- Continuity with traditional English spelling
- System is usable for entire US, as well as other English-speaking countries

These criteria are at odds with each other, so a well-designed spelling system must balance these requirements. Here is an example of a reform spelling system that originated in 1910, with a full dictionary in 1986 [3]. The rules include:

1. Short vowels are a single letter, as in: sat, set, did, dot, cut
2. Long vowels are followed immediately by an e, as in: sundae, see, die, toe, cue
3. No silent letters
4. Most double letters are removed
5. Consonants such as f, c, s, j, g have a consistent, single sound and spelling

This results in a system that is intuitive and consistent:

hat, have, laugh, plaid

→ hat, hav, laf, plad

red, head, said, friend

→ red, hed, sed, frend

herd, earth, birth, journey

→ herd, erth, berth, jerny

hide, fight, find, sign, knight

→ hied, fiet, fiend, sien, niet

roll, hole, soul, goal, bowl

→ roel, hoel, soel, goel, boel

tough, love, judge, tongue

→ tuf, luv, juj, tung

knight, receipt, asthma

→ niet, reseet, azma

phone, city, judge, gorgeous

→ foen, sity, juj, gorjus

**Why does it matter? What scientific discoveries, innovations, and desired societal outcomes might result from investment in this area?**

**Spelling reform matters because current English spelling is very difficult to learn, requires many years to become proficient, wastes time that could be spent on other subjects, and limits the education and careers of disadvantaged children.**

The cost of our current spelling system can be measured in hours of teaching, learning, and memorizing over the course of every child's education. Current improvements in literacy education result in incremental gains, while simplifying spelling is a potential game changer.

In the US, 44 million adults (23%) are functionally illiterate, lacking basic skills beyond a fourth-grade level [1]. Poor reading skills are strongly correlated with dropping out of high school, unemployment, poverty, crime, incarceration, and raising children with low literacy. This vicious cycle is difficult to break, and literacy rates have not improved in past decades [1], despite increased spending on preschool and reading programs.

Imagine how these issues would change if it only took one year to become “accurate and fluent in foundation-level reading”, as in Finland [2]. What if fourth graders could read and write proficiently, at the same level as their spoken vocabulary?

We, as a country, have a moral obligation to improve the circumstances of those who are disadvantaged due to poverty, lack of education, and family history. Learning to read is the first step towards success in education and employment. Yet this crucial step is extraordinarily difficult.

Simplified spelling would be life changing for students who struggle with reading and writing, particularly those with learning disabilities and recent immigrants. It would promote English as an international language, as spelling is often the hardest part for foreign speakers.

Much of the unruliness of English spelling can be traced back to Samuel Johnson, who completed the first comprehensive dictionary in 1755. Until this time spelling varied greatly from one writer to the next. Johnson used many spellings for each sound, and many of his choices were arbitrary and inconsistent, as in:

- s versus c: **tennis**, **office**, **promise**, **purchase**, **carcass**, **witness**
- vowels: **father**, **doctor**, **nectar**, **amateur**
- double consonants: **arise** – **arrive**, **shoddy** – **body**, **bus** – **fuss**

Other odd spellings were added by foreign typesetters (h in ghost) or mistaken associations with foreign spellings (s in island). Today we are hindered by the accumulation of this historical clutter.

The potential societal outcome of a well planned, long-term research endeavor to fix spelling is a substantial increase in literacy rates, and at much earlier ages. Valuable teaching and learning time can be spent on other topics, and students can get to the business of “reading to learn” rather than getting stuck “learning to read”. Most importantly, it would change the lives of disadvantaged students, for whom current spelling is too large of a hurdle.

The possible improvements of a simplified spelling system are simply too great to ignore.

**If we invest in this area, what would success look like?**

**Success would be the production of a body of research detailing the potential benefits, costs, and methods of English spelling reform.**

It would engage specialists in literacy, education, information technology, linguistics, and child development. The body of research needs to be substantial enough that a large group of researchers could come to a consensus on the key research issues, above. There needs to be repeated studies with simplified spelling using thousands of participants at many ages and socio-economic levels. Methodology must be standardized across studies so that results can be compared and integrated into meta-studies, leading to conclusive findings not available today.

Importantly, converting the US to a new simplified spelling system is *not* a goal for this research program. Those are policy decisions to be debated and carried out by elected officials from school boards to congress. Research *informs* policy.

Today we have no idea of the gains in literacy rates that spelling reform might provide. There are hints from other countries that the payoff could be so large, that it would be a watershed advancement, potentially the greatest improvement in education in our time.

Simplified spelling is currently seen as a fringe topic, something that individual researchers would not risk publishing on. The National Science Foundation is in a unique position to bring legitimacy to this research topic by funding an organized research program to assess all aspects: benefits, costs, and methods. A successful program will spur a new field of research in the mainstream published literature, so that a topic with so much potential can be evaluated by the whole community of education specialists.

### **Why is this the right time to invest in this area?**

**Electronic media can now easily accommodate two English spelling systems, providing a new, easy route to spelling reform that was not possible even a decade ago.** Historically, the problem with English spelling reform has been that all English speakers are thoroughly vested in the current system, however archaic and difficult it might be. Electronic devices can translate between spelling systems, so that each person can choose their preferred system with the click of a button. A transition generation could be taught both systems and have their choice, but no individual or school district would be required to learn or switch at any particular time.

**A transformational improvement in literacy is critically needed today.** Low-skilled jobs are disappearing, as even retail and food service become automated. Today's workforce requires much higher literacy skills, and these needs will continue to increase. Simplified spelling provides a potential route to improve education for everyone.

**Please give us three key words describing the Big Idea.**

spelling reform, literacy, reading

### **Publication/Citation References (optional)**

In the boxes below, you may list up to 3 publication/citation references, either by text or link.

**Reference #1** National Assessment of Adult Literacy

**Reference #1 URL** <https://nces.ed.gov/naal>

**Reference #2** Seymour, P. H., Aro, M. , Erskine, J. M., (2003), Foundation literacy acquisition in European orthographies. *British Journal of Psychology*, 94: 143-174.

doi:10.1348/000712603321661859

**Reference #2 URL** <https://onlinelibrary.wiley.com/doi/abs/10.1348/000712603321661859>

**Reference #3** Rondthaler, Edward and Edward J. Lias, *Dictionary of Simplified American Spelling* New York: The American Language Academy, 1986.

**Reference #3 URL** <https://zenodo.org/record/3523563#.XbpUApNKh24>